



# MW-3EM

A/B Video and embedded audio mixer.

## user manual

# User Manual Versions

Versions	Changes	Date	SW Vers
1.00	Original Version	16/3/2008	8.00
1.10	Automatically extracted automation parameters added. Various corrections. Additional information on Memories.	17/5/2009	8.10

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# I System Overview

## I.I The MW-3EM Product

This manual describes the function of the MW-3EM, mixer/wipe unit. This unit is similar to the older eyeheight MW-3E but will also function in HD-SDI modes. The MW-3EM product also has a full 16 channels of audio as standard. The system is also available as an MW-3M which has no audio processing capability.

The MW-3EM is an A/B (2-Input) SDI Mixer unit which will perform a variety of transitions commonly used in transmission and post production. The main features are as follows:

- A/B Mix/Cut transitions
- A/B Wipe transitions with 8 wipe patterns with coloured/soft borders
- 16 channel embedded Audio Mixing follows video transitions. (configurable as mix or cut transitions, cut transitions suitable for dolby E splice) \*\*
- Embedded audio manipulation (LR swap, Mono....) \*\*
- Programmable (Auto) or manual transitions
- Preview Output with safe area generator built in.
- Internal Matte and Black Generator.
- Up to +/- ½ Line user definable synchronisation window for A/B Inputs
- External Digital Reference Input ensures output stability
- 6 user memories
- Compatible with etherbox GPI/Tallies.
- FULLY software and firmware updatable using Flash technology.
- Compatible with eyeheight geNETics automation protocol.

\*\* MW-3ME only, not available on the MW-3M.

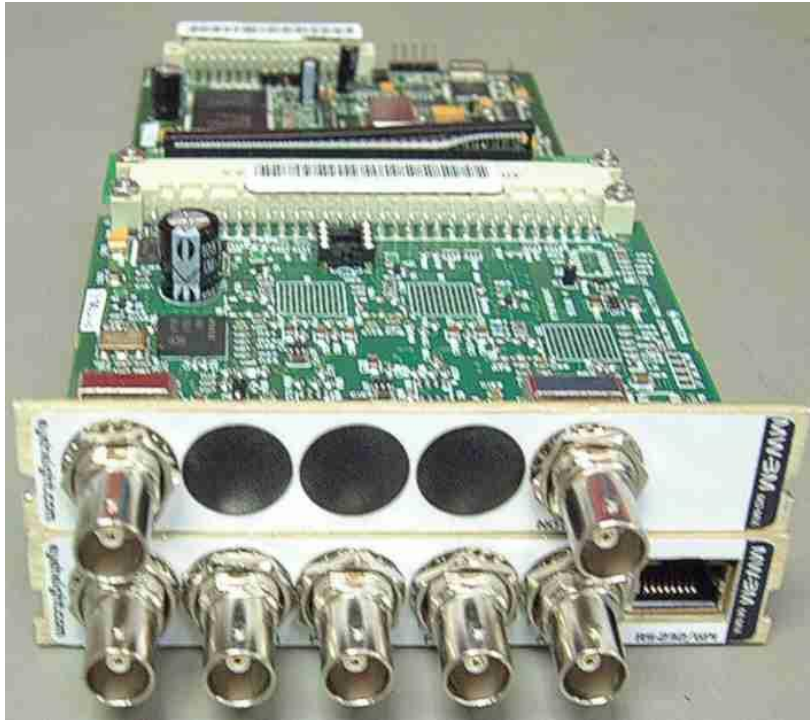


Figure 1 MW-3EM Processing card.

## Associated Equipment for the MW-3EM

The MW-3EM processing card requires the following in order to set up and operate the unit.

1. An etherbox chassis (FB-9E). Up to three MW-3EM units can be installed in one chassis.
2. A Flexipanel control surface such as an FP-9 or an FP-10.



Figure 2 - Front view of etherbox (FB-9E) fitted with FF-9 blank panel

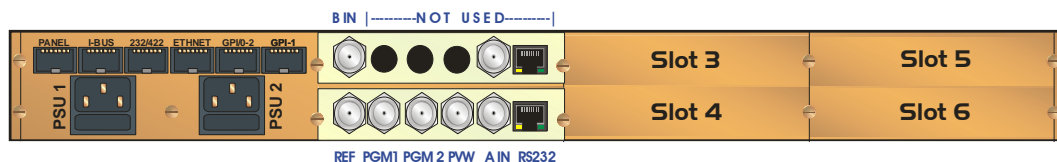


Figure 3 Rear view of etherbox with a single MW-3EM installed.



**Figure 4 FP-9 Flexipanel can be fitted on the FB-9E or remotely using and RR-9 kit.**



## 2 Installation

This unit requires SDI digital video connections to the BNC connectors. The user should refer to the etherbox user manual for installation of the MW-3EM into a chassis and connection of flexipanel. This will also describe the process of acquiring a processing card (in this case the MW-3EM) by the Flexipanel which is necessary to access the menu structure within the MW-3EM.

### 2.1 Connections on the MW-3EM product

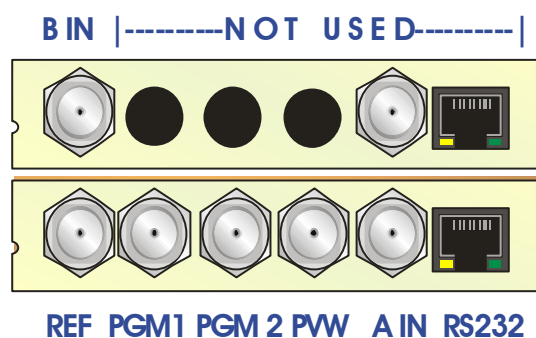


Figure 5 MW-3EM connections

A Typical Connection diagram for the MW-3EM is shown below. All signals, including the reference, are SDI.

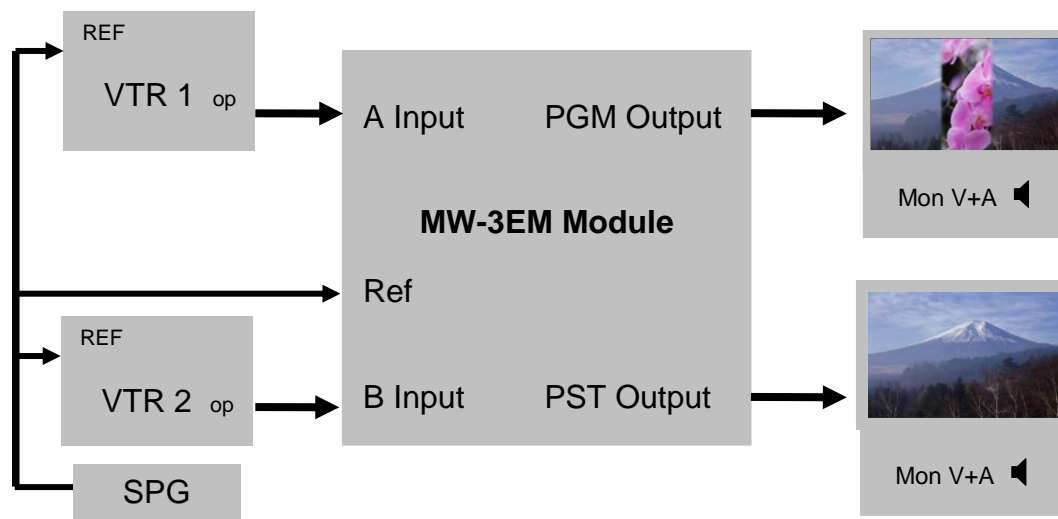


Figure 6 - Typical connections for an MW-3EM Module

## **2.2 Video Processing, MW-3EM, MW-3M.**

The MW-3EM and the MW-3M have exactly the same video processing abilities. The system will operate over a wide range of Video standards. Please see section 4.4 for a full list. In each case it must be understood that a suitable digital reference must be available in the operating line standard. For example if the system is being switched from 525 line standard to 1080i/50, then the reference must also be switched from a synchronous 525 digital standard to a 1080i/50 line standard.

## **2.3 Video Preview output.**

The Preview output will always show the “other” input that is not on air. It is configured not to show Matte or Black outputs as these are often used internally as intermediate sources. For example when a U or V fade is performed.

## **2.4 Audio Processing, MW-3EM, MW-3M.**

The MW-3EM has full 16 channel audio processing. Normally this means that if the Video mixes then the audio will also mix from one source to another. In the case of transitions through Matte or Black these sources are treated as mute. This results in a smooth audio transition on all 16 audio channels. Each audio input can also be configured for Stereo, stereo swap, mono and other styles. As well as this any audio pair from any group can be configured to cut (splice) rather than mix. This is guaranteed to splice correctly with Dolby-E sources assuming that they are correctly synchronous.

The MW-3M has no audio processing ability. This will simply pass all the vertical and horizontal data (including the audio) unprocessed. The data in blanking is passed at the end of each transition.

## **2.5 Audio Preview output.**

The audio on the preview channel will always be the “other” input that is not on air. The preview audio is unprocessed and is spliced with the video from source to source.

## 3 Menu Control of the MW-3EM

All GeNETics products are controlled using a generic menu system. This generic menu system is operated from a generic panel (Flexipanel FP-9 or FP-10). An FP-9 is shown below (An FP-10 has the same controls in a different layout style). For information about acquiring processor cards for control on a Flexipanel see the etherbox manual section 4.

### 3.1 Flexipanel controls.

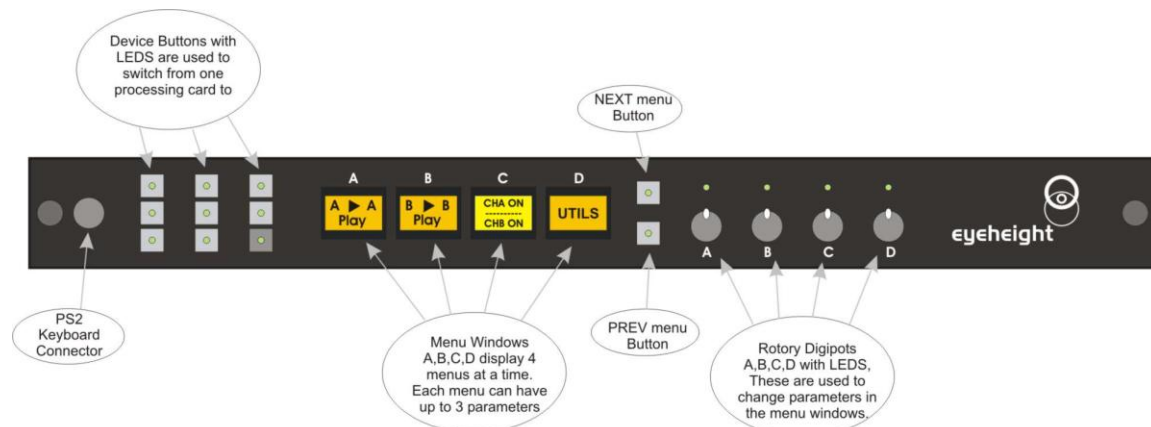


Figure 7 Flexipanel (FP-9) controls.

#### 3.1.1 Device Buttons.

There are 8 grey device buttons. These switch between the currently selected processing cards installed in the etherbox. It is also possible to select cards in another chassis if the I-Bus is connected to the other chassis.

#### 3.1.2 Menu Navigation.

There are two ways to navigate from menu to menu.

1. Using the NEXT and PREV buttons. These are for “Flat” menu structures. The NEXT and PREV LEDs will flash while further menus are available.
2. Using a **GOTO ANOTHER MENU** LCD button (as below coloured orange). This is more common and will take you straight to a relevant set of menus. Examples are the **Play** and **UTILS** menu’s shown on Figure 8.



Figure 8 Types of menus showing their characteristic colours

### **3.1.3 Parameter adjustment of a green menu.**

A green menu is one in which there is only one adjustable parameter. There are two ways to adjust the parameter in a green menu.

1. Press the green LCD button. This will increment the value in that window. This is most frequently done when the menu parameter is Textural for example switching a parameter between ON and OFF. In this case a button press is most natural.
2. Use the Rotary digipot (A,B,C or D) to adjust the parameter in the respective LCD window (A,B,C or D). The direction and speed of rotation enable numeric values to be set easily.

### **3.1.4 Parameter adjustment of a red menu**

A red menu is one in which there is two or three adjustable parameters. In this case it is necessary to first select the menu by pressing the red button. When the red button is pressed it will turn green and either two or three of the rotary digipot LEDs will flash indicating that the respective rotary digipot will operate the respective parameter.

### **3.1.5 Information display**

A Yellow menu (Which on most panels does look a light orange!) is one in which only information is displayed. An example of this is the software version display.

## **3.2 Memories**

### **3.2.1 User Memories**

The user memories are a generic feature of all eyeheight geNETics products. Six of these are included in the MW-3EM. Parameters as shown in the RED menu numbers are saved.

### **3.2.2 User Memories change for each line standard**

It is important to realise that although there are 6 user memories, each of these user memories is dependent of the line standard being used. There are 4 generic line standards recognised. These are 625i, 525i, 720p and 1080i. Each of these line standards has there OWN set of 6 memories. This can cause confusion but it is usually a very helpful feature as parameters have different ranges in different line standards.

### **3.2.3 Remembering setups on power up.**

The eyeheight memory system also has a "Power on" Memory. If the user requires a particular setup upon power up then this setup MUST be stored in the power-on Memory. Like the User Memories, the power-on memories are dependent on line standard. There are 4 generic line standards recognised. These are 625i, 525i, 720p and 1080i. Each of these line standards has it's OWN

power-on memory. To store a setting in a power on memory ensure that the appropriate line standard is being applied to the BG input to the device, then adjust the settings as required for power-on, then Navigate to the “Save As Power-On Memory” menu. (UTILS→SETUP→MORE→RESETS→SET AS POW-ON MEM.)

### **3.2.4 Naming User Memories**

The user memories can be named with up to 6 characters. To do this plug in a PS-2 Keyboard into a Flexipanel and select the appropriate processor card with a device button. (See Figure 8 for connector location). To name memory 1, “TXroom”

1. Hit F9 function key. The LCD displays will change to text entry mode
2. Type “M01:TXroom” and then press enter.
3. You may get a “not acknowledged” message, this does not matter.

Other memories can be named in the same way but changing the 01 to another memory number.

## **3.3 Tamper Locking the MW-3EM.**

The user can lock specific menus or all the menus on the MW-3EM so that it cannot be adjusted with a manual control panel. This does not effect automation.

To do this plug in a PS-2 Keyboard into a Flexipanel and select the appropriate processor card with a device button. (See Figure 8 for connector location). To lock only menu 8 (Transition type)

1. Hit F9 function key. The LCD displays will change to text entry mode
2. Type “L08:” and then press enter.

A padlock symbol will appear on the menu and it cannot be adjusted. To unlock menu 8, type “A08:” as step 2 above. Other menus are done in the same way

To lock the whole product type “L:” as step 2 above and to unlock the whole product type “A:” as step 2 above.

## **3.4 GPI/Tally Set-up.**

### **3.4.1 On-Board GPI's**

The MW-3EM is a geNETics product. The geNETics system uses generic Input/Output cards which have 3 GPI's and one Tally output. These have been used in this system as opportunistic GPI's which may be of use to the user. They do not provide a comprehensive GPI control but may be used as part of a GPI solution in conjunction with the GPI's on the etherbox.

The operation of these is explained in the table below.

**Table 1 - On-Board GPI settings**

GPI	Effect
1	Momentary activation to Ground >50mS will cause a TAKE to the "A" side of the mixer.
2	Momentary activation to Ground >50mS will cause a TAKE to the "B" side of the mixer.
3	Momentary activation to Ground >50mS will cause a TAKE to the "Other" side of the mixer. (If PGM on "A" it will go to "B")

0=Short to ground or logic 0V, 1=Pulled up internally or logic +3→+12V

### 3.4.2 On-Board Tally

The single tally output simply indicates "Low" (Transistor activated) when the "B" side is on-air. Otherwise it indicates "HIGH".

## 3.5 Configuring tallies on the etherbox.

The MW-3EM can make use of the three configurable tallies on the etherbox chassis. The etherbox chassis has three usable tallies. These are numbered tallies 11,12 and 13. Set up these menus for the box number and tally number for A channel and B channel inputs of the mixer on menu number 45. If you do not wish to use a tally set the box number to 0. Refer to the etherbox manual for interface information.

## 3.6 The MW-3EM Menu Set.

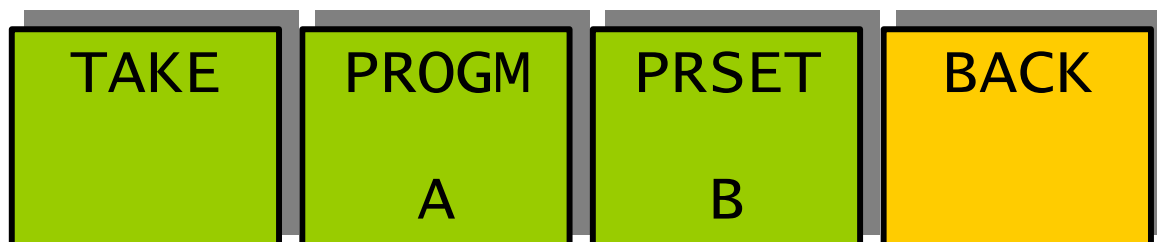
### Menus 00-03 Top Level Menus



Menu Num.	Heading	Automation	Function
00	PLAY	none	Go To the main Play menus (4-7)
01	VIDEO	none	Go To the main Video menus (8-23)
02	AUDIO	none	Go To the main Audio menus (108-127)

03	UTIL	none	Go To the main Utility menus (36)
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#### Menus 04-07 PLAY Menus



Menu Num.	Heading	Automation	Function
04	TAKE	1=take B 2=take A	This Causes the Auto Transition to occur.
05	PROGM	0=In A 1=In B 2=Matte 3=Black	This Shows the currently selected "On-air" Source. A,B matte or black (matte and black are internal sources)
06	PRSET	0=In A 1=In B 2=Matte 3=Black	This Shows the Next selected "On-air" Source. A,B matte or black (matte and black are internal sources)
07	BACK	none	Go To the Top Level Menus

#### Menus 08-11 VIDEO Transition Set-up Menus (NEXT for more)



Menu Num.	Heading	Automation	Function
08	TRANS	0=Mix 1=Wipe 2=Cut 3=Cut-Cut 4=Cut-Fade 5=Fade-Cut 6=Fade-Fade	This sets the transition type between Mix, Wipe and Cut and "U" and "V" fade types. "U" and "V" fades Transition to either "Black" or "Matte" and then "Hold" for a period before then transitioning to the Preset Source.

09	TIME	Menu Level "A" 1-200 Menu Level "B" 1-200	Press this button and the two digipots indicated by the lit LED's will change the transition time (in fields - Tr) and the Hold time (in fields – Hd). The Hold time is the time that the "U" and "V" fades stay on Black (Or Matte).
10	WIPE (Pattern)	0=Vertical 1=Horiz 2=Vert Curtain 3=Horiz Curtain 4=Diagonal 5=Diamond 6=Arrow Left 7=Arrow Up	This shows a representation of the shape of the currently selected Wipe Transition.
11	BACK	none	Go To the Top Level Menus

### Menus 12-15 VIDEO Transition Set-up Menus (NEXT/PREV to navigate)

BORDER =SOFT	BORDER SIZE =10	COLOUR DEPTH =50%	BACK
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Menu Num.	Heading	Automation	Function
12	BORDER	0=Off 1=Soft 2=Colour 3=Soft&Col	This selects the Type of Border on the Wipe edge between; No Border, Soft, Coloured and Soft and coloured.
13	BORDER SIZE	1-49	This sets up the Wipe Border Size between "1" (min) and "49", (max)
14	COLOUR DEPTH	0-511	This represents the amount of colour in the border when the "Soft and coloured" border option is selected. (0-100%)
15	BACK	none	Go To the Top Level Menus

### Menus 16-19 VIDEO Transition Set-up Menus (NEXT/PREV to navigate)

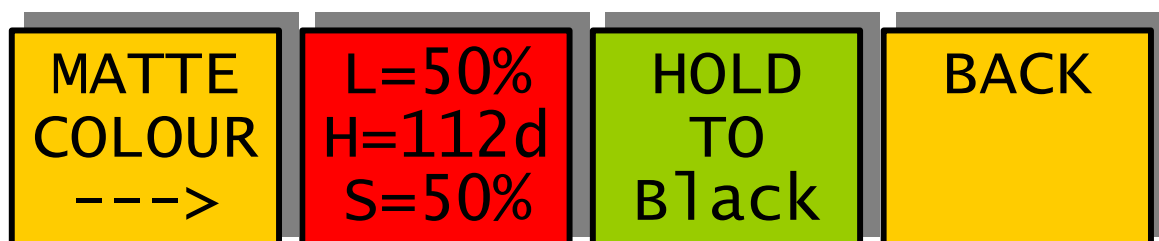
BORDER COLOUR --->	L=50% H=112d S=50%	MANUAL TRAN =0%	BACK
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Menu Num.	Heading	Automation	Function
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16	BORDER COLOUR	NONE	Points to adjacent menu for information only.
17	L= H= S=	Menu Level "A" 0-255 (L) Menu Level "B" 0-255 (H) Menu Level "C" 0-255 (S)	Press this button and the three digipots indicated by the lit LED's will change the Luma, Hue and Saturation of the border colour.
18	MANUAL TRAN	0-799	This will manually move the Transition point between PGM and PST. (0-100%)
19	BACK	none	Go To the Top Level Menus

### Menus 20-23 VIDEO Transition Set-up Menus (PREV for less)



Menu Num.	Heading	Automation	Function
20	MATTE COLOUR	none	Points to adjacent menu for information only.
21	L= H= S=	Menu Level "A" 0-255 (L) Menu Level "B" 0-255 (H) Menu Level "C" 0-255 (S)	Press this button and the three digipots indicated by the lit LED's will change the Luma, Hue and Saturation of the Matte colour.
22	Hold To	0=Black 1=Matte	This is the "Intermediate" source for the "U" and "V" Fades
23	BACK	none	Go To the Top Level Menus

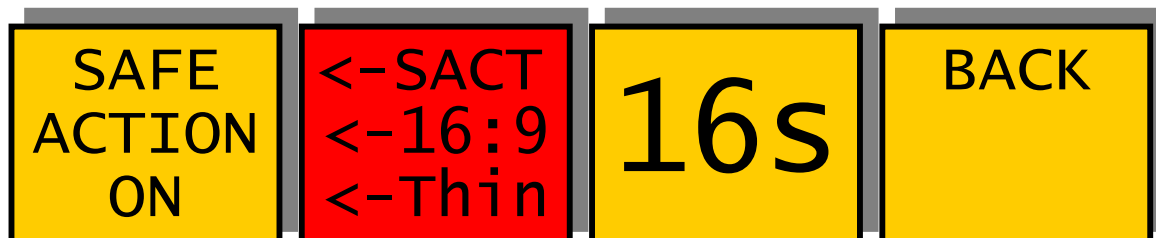
### Menus 24-35 Hidden AUDIO Set-up Menus for automation only.

## Menus 36-39 Utility Menus Nested Menus



Menu Num.	Heading	Automation	Function
36	Preview	none	Go To preview output menus (40-43)
37	Set-up	none	Go To system set-up menus (44-47)
38	Memories	none	Go To memory menus (48-51)
39	Back	none	Go To the main Utility menus (0-3)

## Menus 40-43 Utility Menus: Safe Area Gen



Menu Num.	Heading	Automation	Function
40	SAFE ACTION	None	This Switches on and off the currently selected area. Pressing the "Red" switch next to this one and adjusting the rotary digipots with the lighted green LED's chooses the Selected area.
41	None	<p>Menu Level "A"</p> <p>0=S.Action 1=S.Capt. 2=DigEdge 3=An Edge</p> <p>Menu Level "B"</p> <p>0=4:3</p>	<p>When this button is pressed to "Green". The Three-line display in the window indicates the three options, which can be changed by adjusting the three rotary digipots A, B and C.</p> <p><u>Digipot A</u> Determines the basic Function Selects "Safe Action" option Selects "Safe Caption" option Selects "Digital Edge" option Selects the "An. Edge" option</p> <p><u>Digipot B</u> Determines the Screen Format Standard 4:3 Screen</p>

		1=16:9 2=16p4:3 3=16p149 4=43p16:9  <b>Menu Level "C"</b> 0=Thin 1=Thick 2=Shade 3=Black	Standard 16:9 Screen 16:9 Shoot to protect 4:3 16:9 Shoot to protect 14:9 (*) 4:3 Shoot to protect 16:9 (*) (*) -- Not available in 525  <u>Digipot C</u> Determines the Style of Indicate Thin White lines are used Thick White lines are used Shade is used for "danger area" Black is used for "danger area"
42	<Number>		This is a Timecode seconds count for timecode triggered automation. This records the "seconds" on the VITC on the reference input. This is only relevant in a Playout Compact system.
43	BACK	none	Go To the Top Level Menus

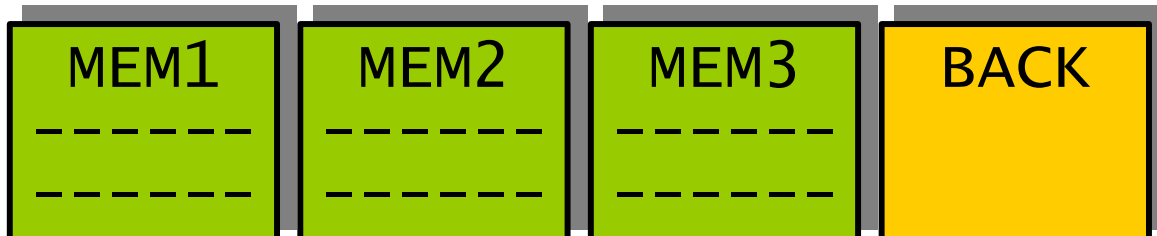
#### Menus 44-47 Utility Menus: Timing, EDH and S/W version



Menu Num.	Heading	Automation	Function
44	Timing	Menu Level "A" 0-1439  Menu Level "B" 0-624	Press this button and the two digipots indicated by the respective LED's will cause modification to the Pixel Timing (37nS per step) and Line Timing (64uS per step)
45 These are always remembered on power up.	External Tally Set-Up	Not Usable	This unit can activate an external Tally on the FB-9E etherbox. The meaning of this set-up is explained in the section 3.5 "Configuring tallies on the etherbox."
46	More	none	Takes you to the Resets and Software upgrade menus. Go to menu 136

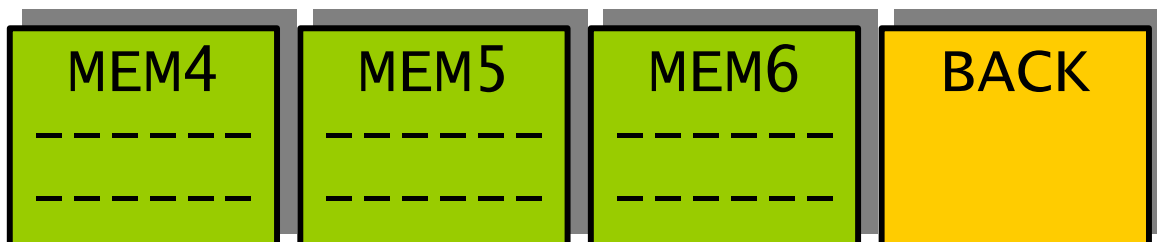
47	BACK	none	Go To the Top Level Menus
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#### Menus 48-51 Utility Menus: Memories (NEXT for more)



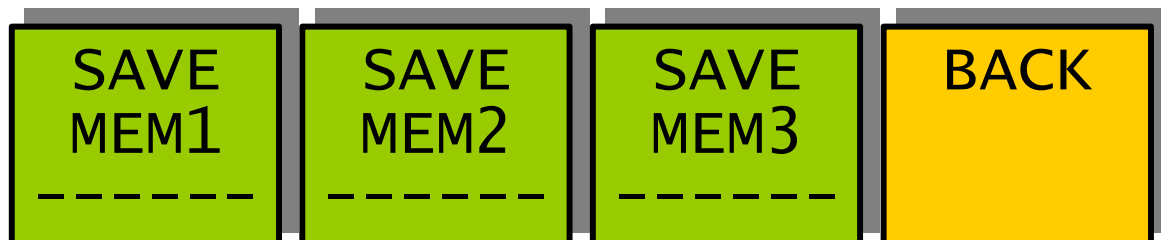
Menu Num.	Heading	Automation	Function
48	MEM1	1=Recall	Pressing this will recall Memory number 1. User Names can be programmed in to the memories using a keyboard. See "geNETics User guide", section "Giving product Memories names"
49	MEM2	1=Recall	Pressing this will recall Memory number 2.
50	MEM3	1=Recall	Pressing this will recall Memory number 3.
51	BACK	none	Go To the Top Level Menus

#### Menus 52-55 Utility Menus: Memories (NEXT/PREV to navigate)



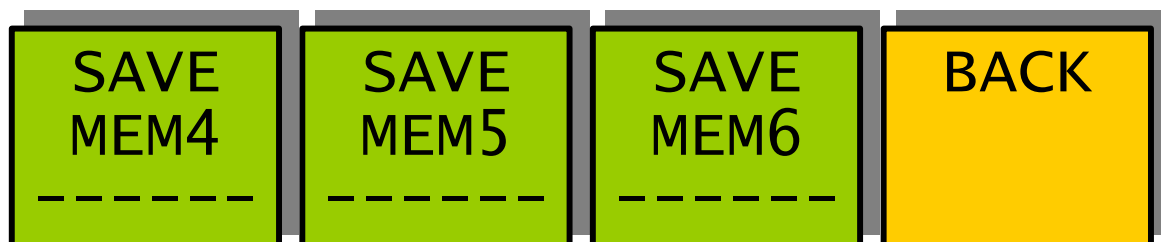
Menu Num.	Heading	Automation	Function
52	MEM4	1=Recall	Pressing this will recall Memory number 4.
53	MEM5	1=Recall	Pressing this will recall Memory number 5.
54	MEM6	1=Recall	Pressing this will recall Memory number 6.
55	BACK	none	Go To the Top Level Menus

### Menus 56-59 Utility Menus: Memories (NEXT/PREV to navigate)



Menu Num.	Heading	Automation	Function
56	SAVE MEM1	1=Save	Pressing this will Save Memory number 1.
57	SAVE MEM2	1= Save	Pressing this will Save Memory number 2.
58	SAVE MEM3	1= Save	Pressing this will Save Memory number 3.
59	BACK	none	Go To the Top Level Menus

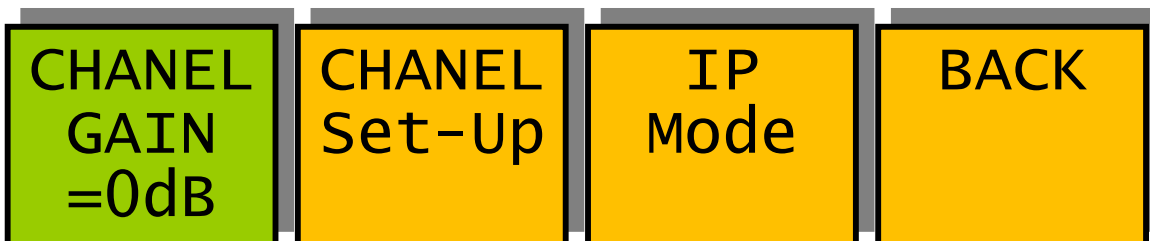
### Menus 60-63 Utility Menus: Memories (NEXT/PREV to navigate)



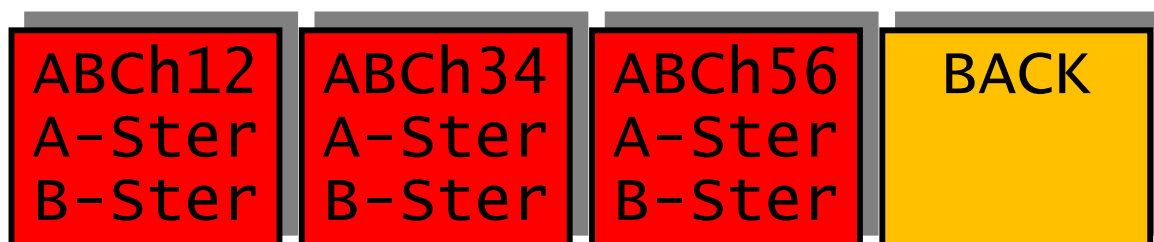
Menu Num.	Heading	Automation	Function
60	SAVE MEM4	1= Save	Pressing this will Save Memory number 4.
61	SAVE MEM5	1= Save	Pressing this will Save Memory number 5.
62	SAVE MEM6	1= Save	Pressing this will Save Memory number 6.
63	BACK	none	Go To the Top Level Menus

### Menus 64-107 Hidden Menu's.

### Menus 108-127 AUDIO Set-up Menus (PREV for less)



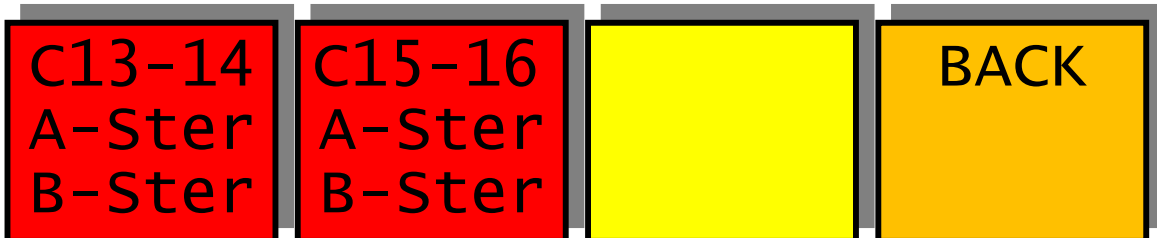
Menu Num.	Heading	Automation	Function
<b>108</b>	CHANNEL GAIN	0=-12dB 1=-6dB 2=0dB 3=+6dB 4=+12dB 5=+18dB	This sets the overall gain on the Embedded Audio. This applies only for the MW-3EM Module, which incorporates embedded audio mixing.
109	Channel Set-Up		Go to menu 124 to set up Audio Transition mode, mix, cut.
110	Input Mode		Go to menu 112 to set up Audio input config, stereo, mono etc
111	BACK	none	Go To the Top Level Menus



Menu Num.	Heading	Automation	Function
<b>112</b>	ABCh12	0=Stereo 1=L<>R 2=L→LR 3=R→LR 4=Mono	Press this button and the two digipots indicated by the respective LED's will cause modification to the A and B embedded audio Ch 1 and 2 as follows: Stereo (No change) Left and Right Swapped Left to both Left and Right Right to both Left and Right Mono
<b>113</b>	ABCh34	As above	As above but for Chan 3/4
<b>114</b>	ABCh56	As above	As above but for Chan 5/6
115	BACK	none	Go To menu 108

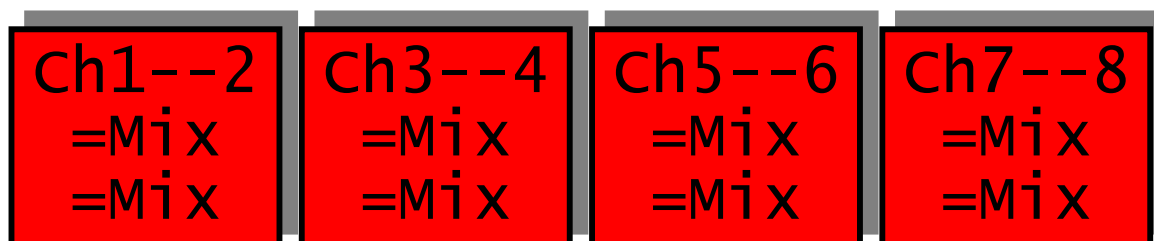


Menu Num.	Heading	Automation	Function
<b>116</b>	ABCh78	0=Stereo 1=L<>R 2=L→LR 3=R→LR 4=Mono	Press this button and the two digipots indicated by the respective LED's will cause modification to the A and B embedded audio Ch 7 and 8 as follows: Stereo (No change) Left and Right Swapped Left to both Left and Right Right to both Left and Right Mono
<b>117</b>	Ch9-10	As above	As above but for Chan 9/10
<b>118</b>	C11-12	As above	As above but for Chan 11/12
119	BACK	none	Go To menu 108



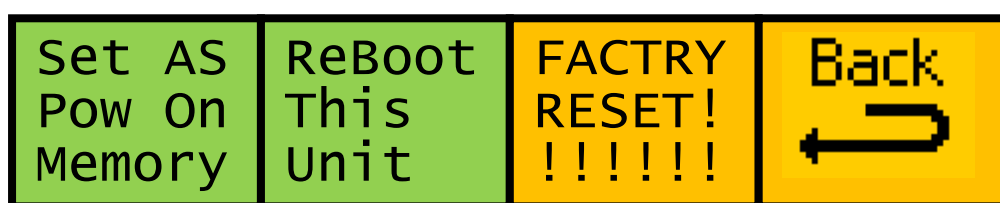
Menu Num.	Heading	Automation	Function
<b>120</b>	C13-14	0=Stereo 1=L<>R 2=L→LR 3=R→LR 4=Mono	Press this button and the two digipots indicated by the respective LED's will cause modification to the A and B embedded audio Ch 13 and 14 as follows: Stereo (No change) Left and Right Swapped Left to both Left and Right Right to both Left and Right Mono
<b>121</b>	Ch15-16	As above	As above but for Chan 15/16
122			

123	BACK	none	Go To menu 108
-----	------	------	----------------



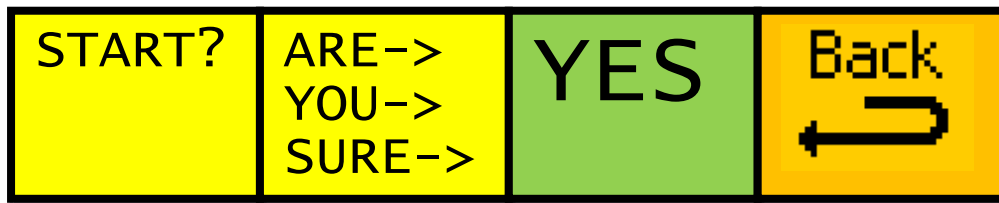
Menu Num.	Heading	Automation	Function
124	Ch1--2	0=Mix 1=Cut	Press this button and the two digipots indicated by the respective LED's will cause modification to the Chan1 and 2 Transitions: Mix Normal Audio with Video Mix Cut Audio cuts in the middle of the video transition. This is useful for splicing DolbyE streams.
125	Ch3--4	As above	As above but for Chan 3/4
126	Ch5--6	As above	As above but for Chan 5/6
127	Ch7--8	As above	As above but for Chan 7/8

#### Menus 128-147 Resets and Software Upgrade.



Menu Num.	Heading	Function
128	Set as Power on Memory	Pressing this will set the current settings as the default settings when the unit is powered up.
129	Reboot this unit	This applies a warm restart to the unit. It is the software equivalent of recycling the power.
130	Factory Reset	Pressing this will take you to the Factory Reset Last Chance menu. (Go To Menu 44).
131	BACK	Go To the Top menu






Menu Num.	Heading	Function
132	----	----
133	----	----
134	YES, I want to do a factory reset!	This will Start a factory Reset of the unit. This will Wipe ALL Logos and Settings that may have been previously set-up. Only do this if you are setting up from scratch, or there is a problem with your unit.
135	BACK	Go To the Top Menus



Menu Num.	Heading	Function
136	Upgrade Software	Pressing this will take you to the Software Upgrade last chance menu. (Go To Menu 140).
137	Software Version	This window displays the software version.
138	Resets	Pressing this will take you to the Reset Options. (Go To Menu 128).
139	BACK	Go To the Utilities Menus

START?	ARE-> YOU-> SURE->	YES	Back 
--------	--------------------------	-----	--

Menu Num.	Heading	Function
140	----	----
141	----	----
142	YES, I want to start a software upgrade	This will Start a software upgrade of the unit. You will need to follow the instructions in the etherbox (FB-9E) manual to correctly perform this procedure. This will Wipe ALL Logos and Settings that may have been previously set-up. The unit MUST be installed in an FB-9E to perform an upgrade.
143	BACK	Go To the Top Menus

MW-2 FILE TIMES	IS UPG IS REC OUT IN	RADING IEVED 3 MINS	IF NO IT
-----------------------	----------------------------	---------------------------	-------------

Menu Num.	Heading	Function
144	----	This is a system message. If you accidentally press "Software Upgrade" then this message appears. If you have done this accidentally, simply WAIT 3 minutes and the system will return back to normal.
145	----	----
146	----	----
147	----	----

## 4 Technical Appendix

### 4.1 GPI/Tally/RS232/ technical information.

The Processor card has an RJ-45 connector with GPI, Tally and RS232 connections as shown below:

1	GPI-1	White/Orange
2	GPI-2	Orange
3	GPI-3	White/Green
4	GND	Blue
5	RS232 TX	White/Blue
6	RS232 RX	Green
7	Not Used	White/Brown
8	Tally (open collector)	Brown

Table 2 GPI/Tally and RS232 pin-out on RJ-45.

#### 4.1.1 GPI Inputs.

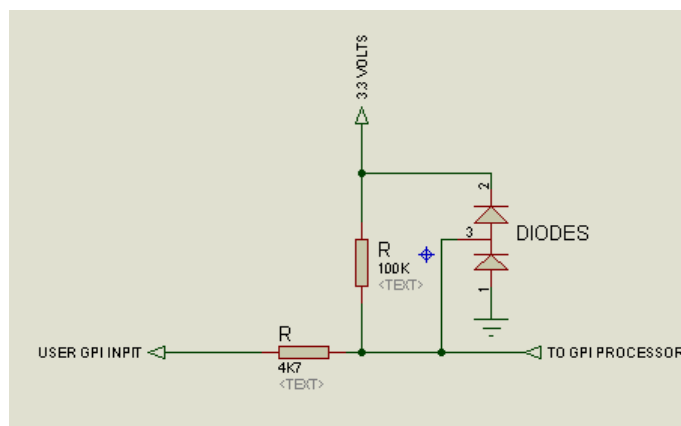


Figure 9 Typical GPI Input

GPI's are normally activated by a short to ground. The GPI has its own internal pull-up resistor. If the user is interfacing with logic then

- $V_{high} = +12V > V_{in} > +3V$
- $V_{low} = +0.3V > V_{in} > 0V$

## 4.1.2 Tally Output.

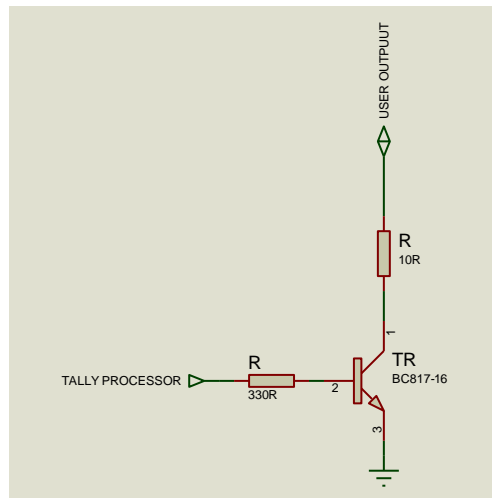


Figure 10 Tally Output

The user Tally Output is an open collector transistor. The drain should be <200mA. An electro-mechanical relay can be operated by this as shown in the example below.

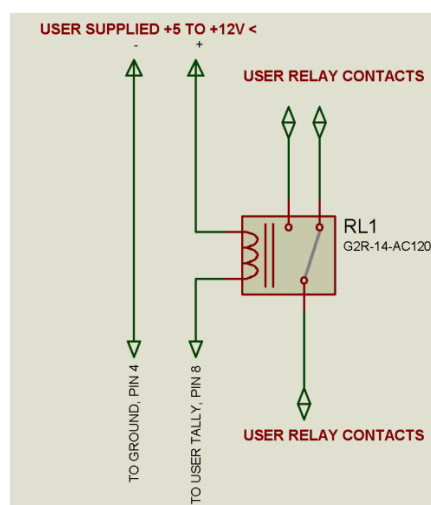


Figure 11 Tally interface to relay.

## 4.1.3 RS232 Interface.

This loosely follows the pin convention of EIA-561 which is a standard for RS232 on an RJ45 cable. Only TX, RX and Signal ground (pin 4) are implemented. For the LI-1D the following RS232 parameters apply:

- 115Kbaud
- 8 Bits, no parity
- 1 Stop bit.

## 4.2 On-Board automation protocol.

### 4.2.1 Implimentation on RS232

A simple text based protocol has been implemented on the RS232 interface. All text strings are shown in inverted commas; do not include them in the actual command sent. Each byte within a text string must be sent within 10mS of each other or the command will time out. This on-board protocol is not the same as the geNETics protocol. Refer to the geNETics protocol in section 6 (Product Automation) of the etherbox manual. GeNETics protocol is used to control a number of processor cards using one connection.

The command set is as follows:

Command	Meaning	Example hex string
"PRn"	Set Program Bus to n, where n=: "A" = A side "B" = B side "M" = Matte "L" = Black	50,52,41 Set Program bus to side "A"
"PSn"	Set Preset Bus to n, where n=: "A" = A side "B" = B side "M" = Matte "L" = Black	50,53,41 Set Preset bus to side "A"
"Tn"	Set transition type n, where n=: 0 = Mix 1 = Wipe 2 = Cut 3 = Cut-Cut 4 = Cut-Fade 5 = Fade-Cut 6 = Fade-Fade.	54,34 Set transition type to be Cut-Fade.
"Wn"	Set Wipe pattern to n, where n=: 0=Vertical 1=Horiz 2=Vert Curtain	57,32 Set wipe pattern to Vertical Curtain.

	3=Horiz Curtain 4=Diagonal 5=Diamond 6=Arrow Left 7=Arrow Up	
"TTnnn"	Set Transition time to nnn. Where nnn=: 000→250	54,54,30,30,38  Set transition time to 8 frames.
"HTnnn"	Set Hold time to nnn. Where nnn=: 000→250	48,30,30,38  Set hold time to 8 frames.
"TK"	Start Auto transition. (TAKE)	54,4B

A response will occur within 100mS of the command. The responses are as follows:

Response	Meaning	Hex string
"OK"	Command was understood and will implement.	4F,4B
"E0"	Command timed out.	45,30
"E1"	Error 1. Unknown command.	45,31
"E2"	Error 2. Next Logo number is not in range.	45,32
"TF"	This indicates that a transition has ended. The user should look for this after a "TK" command and not issue any more commands until this is received.	

### 4.3 geNETics Automation Protocol Parameter table.

This is the Automatically extracted parameters for the MW-3EM. This is used for the generic geNETics automation protocol. See etherbox manual for a full description of its usage.

## 4.3.1 -625 automatically extracted menu parameters. V8.I0

```
Menu, Access, Text, Low, Up, Lev, Txt1, Txt2, Txt3, Txt4, Txt5, Txt6, Txt7, Txt8, Txt9, Txt10
0, N/A, [Gr], N/A, N/A, A
1, N/A, [Gr], N/A, N/A, A
2, N/A, [Gr], N/A, N/A, A
3, N/A, [Gr], N/A, N/A, A
4, R/W, {#}, 0, 2, A, TAKE, TAKE, TAKE
4, RD, {#}, 0, 4, B, VidAud, V.Only, A.Only, Asplit, <TRAN>
5, R/W, {#}, 0, 3, A, PROGm:, PROGm:, PROGm:, PROGm:
6, R/W, {#}, 0, 3, A, PRSET:, PRSET:, PRSET:, PRSET:
7, N/A, [Gr], N/A, N/A, A
8, R/W, {#}, 0, 6, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
9, R/W, {TIMES:}{Tr=#}, 3, 253, A
9, R/W, {Hd=#}, 0, 993, B
10, R/W, {#}, 0, 7, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
11, N/A, [Gr], N/A, N/A, A
12, R/W, {BORDER}{#}, 0, 3, A, =OFF, =SOFT, =COLOR, =SFCOL
13, R/W, {Bord}{Size}{=#}, 1, 49, A
14, R/W, {Colour}{Depth:}{=# %}, 0, 511, A
15, N/A, [Gr], N/A, N/A, A
16, N/A, {Border}{color}{----}}, N/A, N/A, A
17, R/W, {L=# %}, 0, 255, A
17, R/W, {H=# d}, 0, 255, B
17, R/W, {S=# %}, 0, 255, C
18, R/W, {Manual}{Tran}{=# %}, 0, 1026, A
19, N/A, [Gr], N/A, N/A, A
20, N/A, {Matte}{color}{----}}, N/A, N/A, A
21, R/W, {L=# %}, 0, 248, A
21, R/W, {H=# d}, 0, 255, B
21, R/W, {S=# %}, 0, 255, C
22, R/W, {Hold}{To:}{#}, 0, 1, A, Black, Matte
23, N/A, [Gr], N/A, N/A, A
24, RD, {Aud In}{#}, 0, 2, A, Lead, Lag, LL Off
24, R/W, {# Fds}, 64537, 999, B
25, RD, {Audout}{#}, 0, 2, A, Lead, Lag, LL Off
25, R/W, {# Fds}, 64537, 999, B
26, R/W, {F.Rate}{In=# F}, 0, 250, A
26, R/W, {Ou=# F}, 0, 250, B
27, N/A, [Gr], N/A, N/A, A
28, R/W, {Audio:}{#}, 0, 1, A, Follow, Sep
29, R/W, {Chanel}{Gain=}{#}, 0, 5, A, -12dB, -6dB, 0dB, +6dB, +12dB, +18dB
30, R/W, {ABmode}{#}, 0, 4, A, STEREO, LSwap, L ] LR, R ] LR, MONO
30, R/W, {#}, 0, 4, B, STEREO, LSwap, L ] LR, R ] LR, MONO
31, N/A, [Gr], N/A, N/A, A
32, R/W, {ATAKE:}{#}, 0, 1, A, A-AUD, <TRAN>
32, R/W, {#}, 0, 1, B, B-AUD, <TRAN>
33, R/W, {Levels}{A=# %}, 0, 1023, A
33, R/W, {B=# %}, 0, 1023, B
34, R/W, {T-Time}{A=# F}, 1, 200, A
34, R/W, {B=# F}, 1, 200, B
35, N/A, [Gr], N/A, N/A, A
36, N/A, [Gr], N/A, N/A, A
37, N/A, [Gr], N/A, N/A, A
38, N/A, [Gr], N/A, N/A, A
39, N/A, [Gr], N/A, N/A, A
40, RD, {#}, 0, 3, A, SAFE, SAFE, DIGITAL, ANALOG
40, RD, {#}, 0, 3, B, ACTION, CAPT'N, EDGE, EDGE
40, R/W, {#}, 0, 1, C, OFF, ON
41, R/W, {#}, 0, 3, A, [S.Act, [S.Cap, [D.Edg, [A.Edg
41, R/W, {#}, 0, 4, B, [4:3, [16:9, [16p4:3, [16p149, 43p149
41, R/W, {#}, 0, 3, C, [Thin, [Thick, [Shade, [Black
42, RD, {# s}, 1, 59, A
43, N/A, [Gr], N/A, N/A, A
44, R/W, {Timing}{# Px}, 0, 1728, A
44, R/W, {# Ln}, 0, 627, B
45, R/W, {#}, 0, 1, A, Chan A, Chan B
45, R/W, {Box=#}, 0, 16, B
45, R/W, {Tal=#}, 0, 255, C
46, N/A, [Gr], N/A, N/A, A
47, N/A, [Gr], N/A, N/A, A
48, R/W, {# >} {Mem 1}{#}, 0, 1, A, Recall, DONE
49, R/W, {# >} {Mem 2}{#}, 0, 1, A, Recall, DONE
50, R/W, {# >} {Mem 3}{#}, 0, 1, A, Recall, DONE
51, N/A, [Gr], N/A, N/A, A
52, R/W, {# >} {Mem 4}{#}, 0, 1, A, Recall, DONE
53, R/W, {# >} {Mem 5}{#}, 0, 1, A, Recall, DONE
54, R/W, {# >} {Mem 6}{#}, 0, 1, A, Recall, DONE
55, N/A, [Gr], N/A, N/A, A
56, R/W, {# >} {Mem 1}{#}, 0, 1, A, Save, DONE
57, R/W, {# >} {Mem 2}{#}, 0, 1, A, Save, DONE
58, R/W, {# >} {Mem 3}{#}, 0, 1, A, Save, DONE
59, N/A, [Gr], N/A, N/A, A
60, R/W, {# >} {Mem 4}{#}, 0, 1, A, Save, DONE
61, R/W, {# >} {Mem 5}{#}, 0, 1, A, Save, DONE
62, R/W, {# >} {Mem 6}{#}, 0, 1, A, Save, DONE
63, N/A, [Gr], N/A, N/A, A
64, N/A, [Gr], N/A, N/A, A
65, N/A, [Gr], N/A, N/A, A
66, N/A, [Gr], N/A, N/A, A
67, N/A, [Gr], N/A, N/A, A
68, R/W, {#}, 0, 6, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
69, R/W, {#}, 0, 3, A, [Gr], [Gr], [Gr], [Gr]
70, N/A, [Gr], N/A, N/A, A
71, N/A, [Gr], N/A, N/A, A
72, R/W, {HoldTo}{#}, 0, 1, A, Black, Matte
72, R/W, {For# F}, 0, 993, B
73, R/W, {L=# %}, 0, 255, A
73, R/W, {H=# d}, 0, 255, B
73, R/W, {S=# %}, 0, 255, C
74, R/W, {User}{TrTime}{=# fr}, 3, 253, A
75, N/A, [Gr], N/A, N/A, A
76, R/W, {#}, 0, 7, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
77, R/W, {#}, 0, 3, A, NoBord, Bordr1, Bordr2, Bordr3
77, R/W, {Sz=#}, 1, 49, B
77, R/W, {Dp=# %}, 0, 511, C
78, R/W, {L=# %}, 0, 255, A
78, R/W, {H=# d}, 0, 255, B
78, R/W, {S=# %}, 0, 255, C
79, N/A, [Gr], N/A, N/A, A
80, R/W, {#}, 0, 1, A, AUTO, MANUAL
81, R/W, {#}, 0, 1, A, AUTO, MANUAL
82, N/A, {Manual}{Audio}{Oride}, N/A, N/A, A
83, N/A, {BACK}{Aud LL}{#}, N/A, N/A, A
84, R/W, {Chanel}{Gain=}{#}, 0, 5, A, -12dB, -6dB, 0dB, +6dB, +12dB, +18dB
```

```

85, R/W, {# }, 0, 4, A, STEREO, LRswap, L ] LR, R ] LR, MONO
86, R/W, {# }, 0, 4, A, STEREO, LRswap, L ] LR, R ] LR, MONO
87, N/A, [Gr], N/A, N/A, A
88, N/A, [Gr], N/A, N/A, A
89, N/A, [Gr], N/A, N/A, A
90, N/A, [Gr], N/A, N/A, A
91, N/A, [Gr], N/A, N/A, A
92, R/W, {# }, 0, 6, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
93, R/W, {# }, 0, 3, A, [Gr], [Gr], [Gr], [Gr]
94, R/W, { user }{TrTime}{=# fr}, 3, 253, A
95, N/A, [Gr], N/A, N/A, A
96, R/W, {HoldTo}{# }, 0, 1, A, Black , Matte
96, R/W, {For# F}, 0, 993, B
97, N/A, {Matte}{Color}{-----}], N/A, N/A, A
98, R/W, {L=# %}, 0, 255, A
98, R/W, {H=# d}, 0, 255, B
98, R/W, {S=# %}, 0, 255, C
99, N/A, [Gr], N/A, N/A, A
100, R/W, {# }, 0, 7, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
101, R/W, {# }, 0, 3, A, NoBord, Bordr1, Bordr2, Bordr3
101, R/W, {Sz=# }, 1, 49, B
101, R/W, {Dp=# %}, 0, 511, C
102, R/W, {L=# %}, 0, 255, A
102, R/W, {H=# d}, 0, 255, B
102, R/W, {S=# %}, 0, 255, C
103, N/A, [Gr], N/A, N/A, A
104, N/A, {MIX }{ }, N/A, N/A, A
105, N/A, {ER }{ }, N/A, N/A, A
106, N/A, {TRA }{ }, N/A, N/A, A
107, N/A, {NS }{ }, N/A, N/A, A
108, R/W, {Chanel}{Gain}{=# }, 0, 5, A, -12dB , -6dB , 0dB , +6dB , +12dB , +18dB
109, N/A, [Gr], N/A, N/A, A
110, N/A, [Gr], N/A, N/A, A
111, N/A, [Gr], N/A, N/A, A
112, R/W, {ABch12}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
112, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
113, R/W, {ABch34}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
113, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
114, R/W, {ABch56}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
114, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
115, N/A, [Gr], N/A, N/A, A
116, R/W, {ABch78}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
116, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
117, R/W, {Ch9-10}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
117, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
118, R/W, {C11-12}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
118, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
119, N/A, [Gr], N/A, N/A, A
120, R/W, {C13-14}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
120, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
121, R/W, {C15-16}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
121, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
122, N/A, { }{ }, N/A, N/A, A
123, N/A, [Gr], N/A, N/A, A
124, R/W, {Group1}{# }, 0, 1, A, 1=Mix , 1=Cut
124, R/W, {# }, 0, 1, B, 2=Mix , 2=Cut
125, R/W, {Group2}{# }, 0, 1, A, 1=Mix , 1=Cut
125, R/W, {# }, 0, 1, B, 2=Mix , 2=Cut
126, R/W, {Group3}{# }, 0, 1, A, 1=Mix , 1=Cut
126, R/W, {# }, 0, 1, B, 2=Mix , 2=Cut
127, R/W, {Group4}{# }, 0, 1, A, 1=Mix , 1=Cut
127, R/W, {# }, 0, 1, B, 2=Mix , 2=Cut
128, R/W, {# }, 0, 1, A, Set As, !WAIT!
129, R/W, {# }, 0, 1, A, ReBoot, !WAIT!
130, N/A, {FACTRY}{RESET!}{!!!!!!}, N/A, N/A, A
131, N/A, [Gr], N/A, N/A, A
132, N/A, {START?}{ }{ }, N/A, N/A, A
133, N/A, { ARE }{ YOU }{SURE?}{ }, N/A, N/A, A
134, R/W, {# }, 0, 1, A, YES , OK!
135, N/A, [Gr], N/A, N/A, A
136, N/A, {UPGRDE}{SOFTWR}{ NOW! }, N/A, N/A, A
137, R/W, {GPI }{ENABLE}{# }, 0, 1, A, =NO , =YES
138, N/A, {RESETS}{ }{ }, N/A, N/A, A
139, N/A, [Gr], N/A, N/A, A
140, N/A, {START?}{ }{ }, N/A, N/A, A
141, N/A, { ARE }{ YOU }{SURE?}{ }, N/A, N/A, A
142, R/W, {# }, 0, 1, A, YES ,
143, N/A, [Gr], N/A, N/A, A
144, N/A, {MW-3M}{FILE }{TIMES }{ }, N/A, N/A, A
145, N/A, {IS UPG }{IS REC }{OUT IN }{ }, N/A, N/A, A
146, N/A, {RADING }{IEVED }{3 MINS }{ }, N/A, N/A, A
147, N/A, {IF NO }{IT }{ }, N/A, N/A, A

```

## 4.3.2 -525 automatically extracted menu parameters. V8.10

Menu, Access, Text, Low, Up, Lev, Txt1, Txt2, Txt3, Txt4, Txt5, Txt6, Txt7, Txt8, Txt9, Txt10

```

0, N/A, [Gr], N/A, N/A, A
1, N/A, [Gr], N/A, N/A, A
2, N/A, [Gr], N/A, N/A, A
3, N/A, [Gr], N/A, N/A, A
4, R/W, {# }, 0, 2, A, TAKE , TAKE , TAKE
4, RD, {# }, 0, 4, B, VidAud, V.Only, A.Only, Asplit, <TRAN>
5, R/W, {# }, 0, 3, A, PROGM:, PROGM:, PROGM:, PROGM:
6, R/W, {# }, 0, 3, A, PRSET:, PRSET:, PRSET:, PRSET:
7, N/A, [Gr], N/A, N/A, A
8, R/W, {# }, 0, 6, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
9, R/W, {TIMES:}{Tr=# }, 3, 253, A
9, R/W, {Hd=# }, 0, 993, B
10, R/W, {# }, 0, 7, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
11, N/A, [Gr], N/A, N/A, A
12, R/W, {BORDER}{# }, 0, 3, A, =OFF , =SOFT , =COLOR, =SFCOL
13, R/W, { Bord }{ size }{=# }, 1, 49, A
14, R/W, {Colour}{Depth:}{=# %}, 0, 511, A
15, N/A, [Gr], N/A, N/A, A
16, N/A, {Border}{Color}{-----}], N/A, N/A, A
17, R/W, {L=# %}, 0, 255, A
17, R/W, {H=# d}, 0, 255, B
17, R/W, {S=# %}, 0, 255, C
18, R/W, {Manual}{ Tran }{=# %}, 0, 1026, A
19, N/A, [Gr], N/A, N/A, A
20, N/A, {Matte}{Color}{-----}], N/A, N/A, A
21, R/W, {L=# %}, 0, 248, A
21, R/W, {H=# d}, 0, 255, B
21, R/W, {S=# %}, 0, 255, C

```



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22, R/W, {Hold }{To: }{# }, 0, 1, A, Black , Matte
23, N/A, [Gr], N/A, N/A, A
24, RD, {Aud In}{# }, 0, 2, A, Lead , Lag , LL Off
24, R/W, {# Fds}, 64537, 999, B
25, RD, {AudOut}{# }, 0, 2, A, Lead , Lag , LL Off
25, R/W, {# Fds}, 64537, 999, B
26, R/W, {F.Rate}{In=# F}, 0, 250, A
26, R/W, {Ou=# F}, 0, 250, B
27, N/A, [Gr], N/A, N/A, A
28, R/W, {Audio}{# }, 0, 1, A, Follow, Sep
29, R/W, {Chanel}{Gain=}{# }, 0, 5, A, -12dB , -6dB , 0dB , +6dB , +12dB , +18dB
30, R/W, {ABmode}{# }, 0, 4, A, STEREO, LRswap, L ] LR, R ] LR, MONO
30, R/W, {# }, 0, 4, B, STEREO, LRswap, L ] LR, R ] LR, MONO
31, N/A, [Gr], N/A, N/A, A
32, R/W, {ATAKE}{# }, 0, 1, A, A-AUD , <TRAN>
32, R/W, {# }, 0, 1, B, B-AUD , <TRAN>
33, R/W, {Levels}{A=# %}, 0, 1023, A
33, R/W, {B=# %}, 0, 1023, B
34, R/W, {T-Time}{A=# F}, 1, 200, A
34, R/W, {B=# F}, 1, 200, B
35, N/A, [Gr], N/A, N/A, A
36, N/A, [Gr], N/A, N/A, A
37, N/A, [Gr], N/A, N/A, A
38, N/A, [Gr], N/A, N/A, A
39, N/A, [Gr], N/A, N/A, A
40, RD, {# }, 0, 3, A, SAFE , SAFE , DIGITAL, ANALOG
40, RD, {# }, 0, 3, B, ACTION, CAPT'N, EDGE , EDGE
40, R/W, {# }, 0, 1, C, OFF , ON
41, R/W, {# }, 0, 3, A, [S.Act, [S.Cap, [D.Edg, [A.Edg
41, R/W, {# }, 0, 4, B, [4:3 , [16:9 , 16p4:3, 16p149, 43p149
41, R/W, {# }, 0, 3, C, [Thin , [Thick, [Shade, [Black
42, RD, {# s }, 1, 59, A
43, N/A, [Gr], N/A, N/A, A
44, R/W, {Timing}{# Px}, 0, 1728, A
44, R/W, {# Ln}, 0, 627, B
45, R/W, {# }, 0, 1, A, Chan A, Chan B
45, R/W, {Box=# }, 0, 16, B
45, R/W, {Tal=# }, 0, 255, C
46, N/A, [Gr], N/A, N/A, A
47, N/A, [Gr], N/A, N/A, A
48, R/W, {# > }{Mem 1}{# }, 0, 1, A, Recall, DONE
49, R/W, {# > }{Mem 2}{# }, 0, 1, A, Recall, DONE
50, R/W, {# > }{Mem 3}{# }, 0, 1, A, Recall, DONE
51, N/A, [Gr], N/A, N/A, A
52, R/W, {# > }{Mem 4}{# }, 0, 1, A, Recall, DONE
53, R/W, {# > }{Mem 5}{# }, 0, 1, A, Recall, DONE
54, R/W, {# > }{Mem 6}{# }, 0, 1, A, Recall, DONE
55, N/A, [Gr], N/A, N/A, A
56, R/W, {# > }{Mem 1}{# }, 0, 1, A, Save , DONE
57, R/W, {# > }{Mem 2}{# }, 0, 1, A, Save , DONE
58, R/W, {# > }{Mem 3}{# }, 0, 1, A, Save , DONE
59, N/A, [Gr], N/A, N/A, A
60, R/W, {# > }{Mem 4}{# }, 0, 1, A, Save , DONE
61, R/W, {# > }{Mem 5}{# }, 0, 1, A, Save , DONE
62, R/W, {# > }{Mem 6}{# }, 0, 1, A, Save , DONE
63, N/A, [Gr], N/A, N/A, A
64, N/A, [Gr], N/A, N/A, A
65, N/A, [Gr], N/A, N/A, A
66, N/A, [Gr], N/A, N/A, A
67, N/A, [Gr], N/A, N/A, A
68, R/W, {# }, 0, 6, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
69, R/W, {# }, 0, 3, A, [Gr], [Gr], [Gr], [Gr]
70, N/A, [Gr], N/A, N/A, A
71, N/A, [Gr], N/A, N/A, A
72, R/W, {HoldTo}{# }, 0, 1, A, Black , Matte
72, R/W, {For# F}, 0, 993, B
73, R/W, {L=# %}, 0, 255, A
73, R/W, {H=# d}, 0, 255, B
73, R/W, {S=# %}, 0, 255, C
74, R/W, { User }{TrTime}{=# fr}, 3, 253, A
75, N/A, [Gr], N/A, N/A, A
76, R/W, {# }, 0, 7, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
77, R/W, {# }, 0, 3, A, NoBord, Bordr1, Bordr2, Bordr3
77, R/W, {Sz=# }, 1, 49, B
77, R/W, {Dp=# %}, 0, 511, C
78, R/W, {L=# %}, 0, 255, A
78, R/W, {H=# d}, 0, 255, B
78, R/W, {S=# %}, 0, 255, C
79, N/A, [Gr], N/A, N/A, A
80, R/W, {# }, 0, 1, A, AUTO , MANUAL
81, R/W, {# }, 0, 1, A, AUTO , MANUAL
82, N/A, {Manual}{Audio}{Oride}, N/A, N/A, A
83, N/A, {BACK }{Aud LL}{# }, N/A, N/A, A
84, R/W, {Chanel}{Gain=}{# }, 0, 5, A, -12dB , -6dB , 0dB , +6dB , +12dB , +18dB
85, R/W, {# }, 0, 4, A, STEREO, LRswap, L ] LR, R ] LR, MONO
86, R/W, {# }, 0, 4, A, STEREO, LRswap, L ] LR, R ] LR, MONO
87, N/A, [Gr], N/A, N/A, A
88, N/A, [Gr], N/A, N/A, A
89, N/A, [Gr], N/A, N/A, A
90, N/A, [Gr], N/A, N/A, A
91, N/A, [Gr], N/A, N/A, A
92, R/W, {# }, 0, 6, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
93, R/W, {# }, 0, 3, A, [Gr], [Gr], [Gr], [Gr]
94, R/W, { User }{TrTime}{=# fr}, 3, 253, A
95, N/A, [Gr], N/A, N/A, A
96, R/W, {HoldTo}{# }, 0, 1, A, Black , Matte
96, R/W, {For# F}, 0, 993, B
97, N/A, {Matte}{Color}{[-----]}, N/A, N/A, A
98, R/W, {L=# %}, 0, 255, A
98, R/W, {H=# d}, 0, 255, B
98, R/W, {S=# %}, 0, 255, C
99, N/A, [Gr], N/A, N/A, A
100, R/W, {# }, 0, 7, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
101, R/W, {# }, 0, 3, A, NoBord, Bordr1, Bordr2, Bordr3
101, R/W, {Sz=# }, 1, 49, B
101, R/W, {Dp=# %}, 0, 511, C
102, R/W, {L=# %}, 0, 255, A
102, R/W, {H=# d}, 0, 255, B
102, R/W, {S=# %}, 0, 255, C
103, N/A, [Gr], N/A, N/A, A
104, N/A, {MIX }{# }, N/A, N/A, A
105, N/A, {ER }{# }, N/A, N/A, A
106, N/A, {TRA }{# }, N/A, N/A, A
107, N/A, {NS }{# }, N/A, N/A, A
108, R/W, {Chanel}{Gain=}{# }, 0, 5, A, -12dB , -6dB , 0dB , +6dB , +12dB , +18dB
109, N/A, [Gr], N/A, N/A, A

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110, N/A, [Gr], N/A, N/A, A
111, N/A, [Gr], N/A, N/A, A
112, R/W, {ABCh12}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
112, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
113, R/W, {ABCh34}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
113, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
114, R/W, {ABCh56}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
114, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
115, N/A, [Gr], N/A, N/A, A
116, R/W, {ABCh78}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
116, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
117, R/W, {Ch9-10}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
117, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
118, R/W, {C11-12}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
118, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
119, N/A, [Gr], N/A, N/A, A
120, R/W, {C13-14}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
120, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
121, R/W, {C15-16}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
121, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
122, N/A, {#}, {#}, {#}, N/A, N/A, A
123, N/A, [Gr], N/A, N/A, A
124, R/W, {Group1}{#}, 0, 1, A, 1=Mix, 1=Cut
124, R/W, {#}, 0, 1, B, 2=Mix, 2=Cut
125, R/W, {Group2}{#}, 0, 1, A, 1=Mix, 1=Cut
125, R/W, {#}, 0, 1, B, 2=Mix, 2=Cut
126, R/W, {Group3}{#}, 0, 1, A, 1=Mix, 1=Cut
126, R/W, {#}, 0, 1, B, 2=Mix, 2=Cut
127, R/W, {Group4}{#}, 0, 1, A, 1=Mix, 1=Cut
127, R/W, {#}, 0, 1, B, 2=Mix, 2=Cut
128, R/W, {#}, 0, 1, A, Set As, !WAIT!
129, R/W, {#}, 0, 1, A, ReBoot, !WAIT!
130, N/A, {FACTRY}{RESET!}{!!!!!!}, N/A, N/A, A
131, N/A, [Gr], N/A, N/A, A
132, N/A, {START?}{#}, {#}, N/A, N/A, A
133, N/A, { ARE ]}{ YOU ]}{SURE?}{#}, N/A, N/A, A
134, R/W, {#}, 0, 1, A, YES, OK!
135, N/A, [Gr], N/A, N/A, A
136, N/A, {UPGRDE}{SOFTWR}{ NOW! }, N/A, N/A, A
137, R/W, {GPI}{ENABLE}{#}, 0, 1, A, =NO, =YES
138, N/A, {RESETS}{#}, {#}, N/A, N/A, A
139, N/A, [Gr], N/A, N/A, A
140, N/A, {START?}{#}, {#}, N/A, N/A, A
141, N/A, { ARE ]}{ YOU ]}{SURE?}{#}, N/A, N/A, A
142, R/W, {#}, 0, 1, A, YES,
143, N/A, [Gr], N/A, N/A, A
144, N/A, {MW-3M}{FILE}{TIMES}, N/A, N/A, A
145, N/A, {IS UPG}{IS REC}{OUT IN}, N/A, N/A, A
146, N/A, {RADING}{IEVED}{3 MINS}, N/A, N/A, A
147, N/A, {IF NO}{IT}{#}, {#}, N/A, N/A, A

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### 4.3.3 -720p automatically extracted menu parameters. V8.10

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Menu, Access, Text, Low, Up, Lev, Txt1, Txt2, Txt3, Txt4, Txt5, Txt6, Txt7, Txt8, Txt9, Txt10
0, N/A, [Gr], N/A, N/A, A
1, N/A, [Gr], N/A, N/A, A
2, N/A, [Gr], N/A, N/A, A
3, N/A, [Gr], N/A, N/A, A
4, R/W, {#}, 0, 2, A, TAKE, TAKE, TAKE
4, RD, {#}, 0, 4, B, VidAud, V.Only, A.Only, Asplit, <TRAN>
5, R/W, {#}, 0, 3, A, PROG=:, PROG=:, PROG=:, PROG=:
6, R/W, {#}, 0, 3, A, PRSET=:, PRSET=:, PRSET=:, PRSET=:
7, N/A, [Gr], N/A, N/A, A
8, R/W, {#}, 0, 6, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
9, R/W, {TIMES:}{Tr=#}, 3, 253, A
9, R/W, {Hd=#}, 0, 993, B
10, R/W, {#}, 0, 7, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
11, N/A, [Gr], N/A, N/A, A
12, R/W, {BORDER}{#}, 0, 3, A, =OFF, =SOFT, =COLOR, =SFCOL
13, R/W, {Bord}{Size}{#}, 1, 49, A
14, R/W, {Colour}{Depth:}{=# %}, 0, 511, A
15, N/A, [Gr], N/A, N/A, A
16, N/A, {Border}{color}{-----}}, N/A, N/A, A
17, R/W, {L=# %}, 0, 255, A
17, R/W, {H=# d}, 0, 255, B
17, R/W, {S=# %}, 0, 255, C
18, R/W, {Manual}{Tran}{=# %}, 0, 16386, A
19, N/A, [Gr], N/A, N/A, A
20, N/A, {Matte}{color}{-----}}, N/A, N/A, A
21, R/W, {L=# %}, 0, 255, A
21, R/W, {H=# d}, 0, 255, B
21, R/W, {S=# %}, 0, 255, C
22, R/W, {Hold}{To:}{#}, 0, 1, A, Black, Matte
23, N/A, [Gr], N/A, N/A, A
24, RD, {Aud In}{#}, 0, 2, A, Lead, Lag, LL Off
24, R/W, {# Fds}, 64537, 999, B
25, RD, {Audout}{#}, 0, 2, A, Lead, Lag, LL Off
25, R/W, {# Fds}, 64537, 999, B
26, R/W, {F.Rate}{In=# F}, 0, 250, A
26, R/W, {Ou=# F}, 0, 250, B
27, N/A, [Gr], N/A, N/A, A
28, R/W, {Audio:}{#}, 0, 1, A, Follow, Sep
29, R/W, {Chanel}{Gain=}{#}, 0, 5, A, -12dB, -6dB, 0dB, +6dB, +12dB, +18dB
30, R/W, {ABmode}{#}, 0, 4, A, STEREO, LRswap, L ] LR, R ] LR, MONO
30, R/W, {#}, 0, 4, B, STEREO, LRswap, L ] LR, R ] LR, MONO
31, N/A, [Gr], N/A, N/A, A
32, R/W, {ATAKE:}{#}, 0, 1, A, A-AUD, <TRAN>
32, R/W, {#}, 0, 1, B, B-AUD, <TRAN>
33, R/W, {Levels}{A=# %}, 0, 1023, A
33, R/W, {B=# %}, 0, 1023, B
34, R/W, {T-Time}{A=# F}, 1, 200, A
34, R/W, {B=# F}, 1, 200, B
35, N/A, [Gr], N/A, N/A, A
36, N/A, [Gr], N/A, N/A, A
37, N/A, [Gr], N/A, N/A, A
38, N/A, [Gr], N/A, N/A, A
39, N/A, [Gr], N/A, N/A, A
40, RD, {#}, 0, 3, A, SAFE, SAFE, DIGITAL, ANALOG
40, RD, {#}, 0, 3, B, ACTION, CAPT'N, EDGE, EDGE
40, R/W, {#}, 0, 1, C, OFF, ON
41, R/W, {#}, 0, 3, A, [S.Act, [S.Cap, [D.Edg, [A.Edg
41, R/W, {#}, 0, 4, B, [4:3, [16:9, [16p4:3, [16p149, 43p149
41, R/W, {#}, 0, 3, C, [Thin, [Thick, [Shade, [Black

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42, RD, {# s }, 1, 59, A
43, N/A, [Gr], N/A, N/A, A
44, R/W, {Timing}{# Px}, 0, 1728, A
44, R/W, {# Ln}, 0, 627, B
45, R/W, {# }, 0, 1, A, Chan A, Chan B
45, R/W, {Box=# }, 0, 16, B
45, R/W, {Tal=# }, 0, 255, C
46, N/A, [Gr], N/A, N/A, A
47, N/A, [Gr], N/A, N/A, A
48, R/W, {# > }{Mem 1 }{# }, 0, 1, A, Recall, DONE
49, R/W, {# > }{Mem 2 }{# }, 0, 1, A, Recall, DONE
50, R/W, {# > }{Mem 3 }{# }, 0, 1, A, Recall, DONE
51, N/A, [Gr], N/A, N/A, A
52, R/W, {# > }{Mem 4 }{# }, 0, 1, A, Recall, DONE
53, R/W, {# > }{Mem 5 }{# }, 0, 1, A, Recall, DONE
54, R/W, {# > }{Mem 6 }{# }, 0, 1, A, Recall, DONE
55, N/A, [Gr], N/A, N/A, A
56, R/W, {# > }{Mem 1 }{# }, 0, 1, A, Save , DONE
57, R/W, {# > }{Mem 2 }{# }, 0, 1, A, Save , DONE
58, R/W, {# > }{Mem 3 }{# }, 0, 1, A, Save , DONE
59, N/A, [Gr], N/A, N/A, A
60, R/W, {# > }{Mem 4 }{# }, 0, 1, A, Save , DONE
61, R/W, {# > }{Mem 5 }{# }, 0, 1, A, Save , DONE
62, R/W, {# > }{Mem 6 }{# }, 0, 1, A, Save , DONE
63, N/A, [Gr], N/A, N/A, A
64, N/A, [Gr], N/A, N/A, A
65, N/A, [Gr], N/A, N/A, A
66, N/A, [Gr], N/A, N/A, A
67, N/A, [Gr], N/A, N/A, A
68, R/W, {# }, 0, 6, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
69, R/W, {# }, 0, 3, A, [Gr], [Gr], [Gr], [Gr]
70, N/A, [Gr], N/A, N/A, A
71, N/A, [Gr], N/A, N/A, A
72, R/W, {HoldTo}{# }, 0, 1, A, Black , Matte
72, R/W, {For# F}, 0, 993, B
73, R/W, {L=# %}, 0, 255, A
73, R/W, {H=# d}, 0, 255, B
73, R/W, {S=# %}, 0, 255, C
74, R/W, {User }{TrTime}{# fr}, 3, 253, A
75, N/A, [Gr], N/A, N/A, A
76, R/W, {# }, 0, 7, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
77, R/W, {# }, 0, 3, A, NoBord, Bordr1, Bordr2, Bordr3
77, R/W, {Sz=# }, 1, 49, B
77, R/W, {Dp=# %}, 0, 511, C
78, R/W, {L=# %}, 0, 255, A
78, R/W, {H=# d}, 0, 255, B
78, R/W, {S=# %}, 0, 255, C
79, N/A, [Gr], N/A, N/A, A
80, R/W, {# }, 0, 1, A, AUTO , MANUAL
81, R/W, {# }, 0, 1, A, AUTO , MANUAL
82, N/A, {Manual}{Audio}{Oride}, N/A, N/A, A
83, N/A, {BACK }{Aud LL}{ }, N/A, N/A, A
84, R/W, {Chanel}{Gain}{# }, 0, 5, A, -12dB , -6dB , 0dB , +6dB , +12dB , +18dB
85, R/W, {# }, 0, 4, A, STEREO, LRswap, L ] LR, R ] LR, MONO
86, R/W, {# }, 0, 4, A, STEREO, LRswap, L ] LR, R ] LR, MONO
87, N/A, [Gr], N/A, N/A, A
88, N/A, [Gr], N/A, N/A, A
89, N/A, [Gr], N/A, N/A, A
90, N/A, [Gr], N/A, N/A, A
91, N/A, [Gr], N/A, N/A, A
92, R/W, {# }, 0, 6, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
93, R/W, {# }, 0, 3, A, [Gr], [Gr], [Gr], [Gr]
94, R/W, {User }{TrTime}{# fr}, 3, 253, A
95, N/A, [Gr], N/A, N/A, A
96, R/W, {HoldTo}{# }, 0, 1, A, Black , Matte
96, R/W, {For# F}, 0, 993, B
97, N/A, {Matte}{Color}{-----}], N/A, N/A, A
98, R/W, {L=# %}, 0, 255, A
98, R/W, {H=# d}, 0, 255, B
98, R/W, {S=# %}, 0, 255, C
99, N/A, [Gr], N/A, N/A, A
100, R/W, {# }, 0, 7, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
101, R/W, {# }, 0, 3, A, NoBord, Bordr1, Bordr2, Bordr3
101, R/W, {Sz=# }, 1, 49, B
101, R/W, {Dp=# %}, 0, 511, C
102, R/W, {L=# %}, 0, 255, A
102, R/W, {H=# d}, 0, 255, B
102, R/W, {S=# %}, 0, 255, C
103, N/A, [Gr], N/A, N/A, A
104, N/A, {MIX }{ }, N/A, N/A, A
105, N/A, {ER }{ }, N/A, N/A, A
106, N/A, {TRA }{ }, N/A, N/A, A
107, N/A, {NS }{ }, N/A, N/A, A
108, R/W, {Chanel}{Gain}{# }, 0, 5, A, -12dB , -6dB , 0dB , +6dB , +12dB , +18dB
109, N/A, [Gr], N/A, N/A, A
110, N/A, [Gr], N/A, N/A, A
111, N/A, [Gr], N/A, N/A, A
112, R/W, {ABCh12}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
112, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
113, R/W, {ABCh34}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
113, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
114, R/W, {ABCh56}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
114, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
115, N/A, [Gr], N/A, N/A, A
116, R/W, {ABCh78}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
116, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
117, R/W, {Ch9-10}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
117, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
118, R/W, {C11-12}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
118, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
119, N/A, [Gr], N/A, N/A, A
120, R/W, {C13-14}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
120, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
121, R/W, {C15-16}{# }, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
121, R/W, {# }, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
122, N/A, { }, N/A, N/A, A
123, N/A, [Gr], N/A, N/A, A
124, R/W, {Group1}{# }, 0, 1, A, 1=Mix , 1=Cut
124, R/W, {# }, 0, 1, B, 2=Mix , 2=Cut
125, R/W, {Group2}{# }, 0, 1, A, 1=Mix , 1=Cut
125, R/W, {# }, 0, 1, B, 2=Mix , 2=Cut
126, R/W, {Group3}{# }, 0, 1, A, 1=Mix , 1=Cut
126, R/W, {# }, 0, 1, B, 2=Mix , 2=Cut
127, R/W, {Group4}{# }, 0, 1, A, 1=Mix , 1=Cut
127, R/W, {# }, 0, 1, B, 2=Mix , 2=Cut
128, R/W, {# }, 0, 1, A, Set As, !WAIT!

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129, R/W, {# }, 0, 1, A, ReBoot, !WAIT!
130, N/A, {FACTRY}{RESET!}{!!!!!!}, N/A, N/A, A
131, N/A, [Gr], N/A, N/A, A
132, N/A, {START?}{ }{ }, N/A, N/A, A
133, N/A, { ARE }{ YOU }{SURE?}, N/A, N/A, A
134, R/W, {# }, 0, 1, A, YES , OK!
135, N/A, [Gr], N/A, N/A, A
136, N/A, {UPGRDE}{SOFTWR}{ NOW! }, N/A, N/A, A
137, R/W, {GPI }{ENABLE}{# }, 0, 1, A, =NO , =YES
138, N/A, {RESETS}{ }{ }, N/A, N/A, A
139, N/A, [Gr], N/A, N/A, A
140, N/A, {START?}{ }{ }, N/A, N/A, A
141, N/A, { ARE }{ YOU }{SURE?}, N/A, N/A, A
142, R/W, {# }, 0, 1, A, YES ,
143, N/A, [Gr], N/A, N/A, A
144, N/A, {MW-3M}{FILE }{TIMES }, N/A, N/A, A
145, N/A, {IS UPG}{IS REC}{OUT IN}, N/A, N/A, A
146, N/A, {RADING}{IEVED}{3 MINS}, N/A, N/A, A
147, N/A, {IF NO }{IT }, N/A, N/A, A
148, N/A, { THIS }{LICEN-}{CALL }, N/A, N/A, A
149, N/A, {MW3M}{CED }{EYEHE-}, N/A, N/A, A
150, N/A, {MIXER}{FOR HD}{IGHT }, N/A, N/A, A
151, N/A, {IS NOT}{PLEASE}{LTD. }, N/A, N/A, A

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## 4.3.4 -I080i automatically extracted menu parameters. V8.I0

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Menu, Access, Text, Low, Up, Lev, Txt1, Txt2, Txt3, Txt4, Txt5, Txt6, Txt7, Txt8, Txt9, Txt10
0, N/A, [Gr], N/A, N/A, A
1, N/A, [Gr], N/A, N/A, A
2, N/A, [Gr], N/A, N/A, A
3, N/A, [Gr], N/A, N/A, A
4, R/W, {# }, 0, 2, A, TAKE , TAKE , TAKE
4, RD, {# }, 0, 4, B, VidAud, V.Only, A.Only, Asplit, <TRAN>
5, R/W, {# }, 0, 3, A, PROGm:, PROGm:, PROGm:, PROGm:
6, R/W, {# }, 0, 3, A, PRSET:, PRSET:, PRSET:, PRSET:
7, N/A, [Gr], N/A, N/A, A
8, R/W, {# }, 0, 6, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
9, R/W, {TIMES:}{Tr=# }, 3, 253, A
9, R/W, {Hd=# } 0, 993, B
10, R/W, {# }, 0, 7, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
11, N/A, [Gr], N/A, N/A, A
12, R/W, {BORDER}{# }, 0, 3, A, =OFF , =SOFT , =COLOR, =SFCOL
13, R/W, {Bord }{Size }{=# }, 1, 49, A
14, R/W, {Colour}{Depth:}{=# % }, 0, 511, A
15, N/A, [Gr], N/A, N/A, A
16, N/A, {Border}{Color}{[-----]}, N/A, N/A, A
17, R/W, {L=# % }, 0, 255, A
17, R/W, {H=# d}, 0, 255, B
17, R/W, {S=# % }, 0, 255, C
18, R/W, {Manual}{Tran }{=# % }, 0, 16386, A
19, N/A, [Gr], N/A, N/A, A
20, N/A, {Matte}{Color}{[-----]}, N/A, N/A, A
21, R/W, {L=# % }, 0, 255, A
21, R/W, {H=# d}, 0, 255, B
21, R/W, {S=# % }, 0, 255, C
22, R/W, {Hold }{To: }{# }, 0, 1, A, Black , Matte
23, N/A, [Gr], N/A, N/A, A
24, RD, {Aud In}{# }, 0, 2, A, Lead , Lag , LL Off
24, R/W, {# Fds}, 64537, 999, B
25, RD, {AudOut}{# }, 0, 2, A, Lead , Lag , LL Off
25, R/W, {# Fds}, 64537, 999, B
26, R/W, {F.Rate}{In=# F}, 0, 250, A
26, R/W, {Ou=# F}, 0, 250, B
27, N/A, [Gr], N/A, N/A, A
28, R/W, {Audio}{# }, 0, 1, A, Follow, Sep
29, R/W, {Chanel}{Gain=}{# }, 0, 5, A, -12dB , -6dB , 0dB , +6dB , +12dB , +18dB
30, R/W, {Amode}{# }, 0, 4, A, STEREO, LRswap, L ] LR, R ] LR, MONO
30, R/W, {# }, 0, 4, B, STEREO, LRswap, L ] LR, R ] LR, MONO
31, N/A, [Gr], N/A, N/A, A
32, R/W, {ATAKE}{# }, 0, 1, A, A-AUD , <TRAN>
32, R/W, {# }, 0, 1, B, B-AUD , <TRAN>
33, R/W, {Levels}{A=# % }, 0, 1023, A
33, R/W, {B=# % }, 0, 1023, B
34, R/W, {T-Time}{A=# F}, 1, 200, A
34, R/W, {B=# F}, 1, 200, B
35, N/A, [Gr], N/A, N/A, A
36, N/A, [Gr], N/A, N/A, A
37, N/A, [Gr], N/A, N/A, A
38, N/A, [Gr], N/A, N/A, A
39, N/A, [Gr], N/A, N/A, A
40, RD, {# }, 0, 3, A, SAFE , SAFE , DIGTAL, ANALOG
40, RD, {# }, 0, 3, B, ACTION, CAPT'N, EDGE , EDGE
40, R/W, {# }, 0, 1, C, OFF , ON
41, R/W, {# }, 0, 3, A, [S.Act, [S.Cap, [D.Edg, [A.Edg
41, R/W, {# }, 0, 4, B, [4:3 , [16:9 , 16p4:3, 16p149, 43p149
41, R/W, {# }, 0, 3, C, [Thin , [Thick, [Shade, [Black
42, RD, {# s }, 1, 59, A
43, N/A, [Gr], N/A, N/A, A
44, R/W, {Timing}{# Px}, 0, 1728, A
44, R/W, {# Ln}, 0, 627, B
45, R/W, {# }, 0, 1, A, Chan A, Chan B
45, R/W, {Box=# }, 0, 16, B
45, R/W, {Tal=# }, 0, 255, C
46, N/A, [Gr], N/A, N/A, A
47, N/A, [Gr], N/A, N/A, A
48, R/W, {% > }{Mem 1 }{# }, 0, 1, A, Recall, DONE
49, R/W, {% > }{Mem 2 }{# }, 0, 1, A, Recall, DONE
50, R/W, {% > }{Mem 3 }{# }, 0, 1, A, Recall, DONE
51, N/A, [Gr], N/A, N/A, A
52, R/W, {% > }{Mem 4 }{# }, 0, 1, A, Recall, DONE
53, R/W, {% > }{Mem 5 }{# }, 0, 1, A, Recall, DONE
54, R/W, {% > }{Mem 6 }{# }, 0, 1, A, Recall, DONE
55, N/A, [Gr], N/A, N/A, A
56, R/W, {% > }{Mem 1 }{# }, 0, 1, A, Save , DONE
57, R/W, {% > }{Mem 2 }{# }, 0, 1, A, Save , DONE
58, R/W, {% > }{Mem 3 }{# }, 0, 1, A, Save , DONE
59, N/A, [Gr], N/A, N/A, A
60, R/W, {% > }{Mem 4 }{# }, 0, 1, A, Save , DONE
61, R/W, {% > }{Mem 5 }{# }, 0, 1, A, Save , DONE
62, R/W, {% > }{Mem 6 }{# }, 0, 1, A, Save , DONE
63, N/A, [Gr], N/A, N/A, A
64, N/A, [Gr], N/A, N/A, A
65, N/A, [Gr], N/A, N/A, A

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66, N/A, [Gr], N/A, N/A, A
67, N/A, [Gr], N/A, N/A, A
68, R/W, {#}, 0, 6, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
69, R/W, {#}, 0, 3, A, [Gr], [Gr], [Gr], [Gr]
70, N/A, [Gr], N/A, N/A, A
71, N/A, [Gr], N/A, N/A, A
72, R/W, {HoldTo}{#}, 0, 1, A, Black, Matte
72, R/W, {For# F}, 0, 993, B
73, R/W, {L=# %}, 0, 255, A
73, R/W, {H=# d}, 0, 255, B
73, R/W, {S=# %}, 0, 255, C
74, R/W, {User}{TrTime}{# fr}, 3, 253, A
75, N/A, [Gr], N/A, N/A, A
76, R/W, {#}, 0, 7, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
77, R/W, {#}, 0, 3, A, NoBord, Bordr1, Bordr2, Bordr3
77, R/W, {Sz=#}, 1, 49, B
77, R/W, {Dp=# %}, 0, 511, C
78, R/W, {L=# %}, 0, 255, A
78, R/W, {H=# d}, 0, 255, B
78, R/W, {S=# %}, 0, 255, C
79, N/A, [Gr], N/A, N/A, A
80, R/W, {#}, 0, 1, A, AUTO, MANUAL
81, R/W, {#}, 0, 1, A, AUTO, MANUAL
82, N/A, {Manual}{Audio}{Oride}, N/A, N/A, A
83, N/A, {BACK}{Aud LL}, N/A, N/A, A
84, R/W, {Chanel}{Gain}{#}, 0, 5, A, -12dB, -6dB, 0dB, +6dB, +12dB, +18dB
85, R/W, {#}, 0, 4, A, STEREO, LRswap, L ] LR, R ] LR, MONO
86, R/W, {#}, 0, 4, A, STEREO, LRswap, L ] LR, R ] LR, MONO
87, N/A, [Gr], N/A, N/A, A
88, N/A, [Gr], N/A, N/A, A
89, N/A, [Gr], N/A, N/A, A
90, N/A, [Gr], N/A, N/A, A
91, N/A, [Gr], N/A, N/A, A
92, R/W, {#}, 0, 6, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
93, R/W, {#}, 0, 3, A, [Gr], [Gr], [Gr], [Gr]
94, R/W, {User}{TrTime}{# fr}, 3, 253, A
95, N/A, [Gr], N/A, N/A, A
96, R/W, {HoldTo}{#}, 0, 1, A, Black, Matte
96, R/W, {For# F}, 0, 993, B
97, N/A, {Matte}{Color}{-----}], N/A, N/A, A
98, R/W, {L=# %}, 0, 255, A
98, R/W, {H=# d}, 0, 255, B
98, R/W, {S=# %}, 0, 255, C
99, N/A, [Gr], N/A, N/A, A
100, R/W, {#}, 0, 7, A, [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr], [Gr]
101, R/W, {#}, 0, 3, A, NoBord, Bordr1, Bordr2, Bordr3
101, R/W, {Sz=#}, 1, 49, B
101, R/W, {Dp=# %}, 0, 511, C
102, R/W, {L=# %}, 0, 255, A
102, R/W, {H=# d}, 0, 255, B
102, R/W, {S=# %}, 0, 255, C
103, N/A, [Gr], N/A, N/A, A
104, N/A, MIX, N/A, N/A, A
105, N/A, ER, N/A, N/A, A
106, N/A, TRA, N/A, N/A, A
107, N/A, NS, N/A, N/A, A
108, R/W, {Chanel}{Gain}{#}, 0, 5, A, -12dB, -6dB, 0dB, +6dB, +12dB, +18dB
109, N/A, [Gr], N/A, N/A, A
110, N/A, [Gr], N/A, N/A, A
111, N/A, [Gr], N/A, N/A, A
112, R/W, {ABch12}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
112, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
113, R/W, {ABch34}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
113, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
114, R/W, {ABch56}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
114, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
115, N/A, [Gr], N/A, N/A, A
116, R/W, {ABch78}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
116, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
117, R/W, {Ch9-10}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
117, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
118, R/W, {C11-12}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
118, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
119, N/A, [Gr], N/A, N/A, A
120, R/W, {C13-14}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
120, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
121, R/W, {C15-16}{#}, 0, 4, A, A-Ster, A-L[]R, A-L[]LR, A-R[]LR, A-MONO
121, R/W, {#}, 0, 4, B, B-Ster, B-L[]R, B-L[]LR, B-R[]LR, B-MONO
122, N/A, {}, N/A, N/A, A
123, N/A, [Gr], N/A, N/A, A
124, R/W, {Group1}{#}, 0, 1, A, 1=Mix, 1=Cut
124, R/W, {#}, 0, 1, B, 2=Mix, 2=Cut
125, R/W, {Group2}{#}, 0, 1, A, 1=Mix, 1=Cut
125, R/W, {#}, 0, 1, B, 2=Mix, 2=Cut
126, R/W, {Group3}{#}, 0, 1, A, 1=Mix, 1=Cut
126, R/W, {#}, 0, 1, B, 2=Mix, 2=Cut
127, R/W, {Group4}{#}, 0, 1, A, 1=Mix, 1=Cut
127, R/W, {#}, 0, 1, B, 2=Mix, 2=Cut
128, R/W, {#}, 0, 1, A, Set As, !WAIT!
129, R/W, {#}, 0, 1, A, ReBoot, !WAIT!
130, N/A, {FACTRY}{RESET}{!!!!!!}, N/A, N/A, A
131, N/A, [Gr], N/A, N/A, A
132, N/A, {START?}{}, N/A, N/A, A
133, N/A, {ARE }{YOU }{SURE?}}, N/A, N/A, A
134, R/W, {#}, 0, 1, A, YES, OK!
135, N/A, [Gr], N/A, N/A, A
136, N/A, {UPGRDE}{SOFTWR}{NOW!}, N/A, N/A, A
137, R/W, {GPI }{ENABLE}{#}, 0, 1, A, =NO, =YES
138, N/A, {RESETS}{}, N/A, N/A, A
139, N/A, [Gr], N/A, N/A, A
140, N/A, {START?}{}, N/A, N/A, A
141, N/A, {ARE }{YOU }{SURE?}}, N/A, N/A, A
142, R/W, {#}, 0, 1, A, YES,
143, N/A, [Gr], N/A, N/A, A
144, N/A, {MW-3M }{FILE }{TIMES }, N/A, N/A, A
145, N/A, {IS UPG }{IS REC }{OUT IN }, N/A, N/A, A
146, N/A, {RADING }{IEVED }{3 MINS }, N/A, N/A, A
147, N/A, {IF NO }{IT }, N/A, N/A, A
148, N/A, {THIS }{LICEN- }{CALL }, N/A, N/A, A
149, N/A, {MW3M }{CED }{EYEHE- }, N/A, N/A, A
150, N/A, {MIXER }{FOR HD }{IGHT }, N/A, N/A, A
151, N/A, {IS NOT }{PLEASE }{LTD. }, N/A, N/A, A

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## 4.4 Technical Specification

<p><b>When in SDI mode:</b></p> <p><b>SDI Inputs</b> (270Mbit, 800mV p-p±10% into 75ohms load) 3 Inputs (SDI) to SMPTE 259M.</p> <p><b>SDI Outputs</b> (270Mbit, 800mV p-p±10% into 75ohms load) 3 Outputs (SDI) to SMPTE 259M. Out1/Lp, Out 2 &amp; Out 3.</p> <p><b>SDI cable equalisation</b> At least 200m of PSF 1/3. Return Loss better than 18dB, 5MHz - 270MHz</p>	<p><b>Control Surfaces</b> Option of eyeheight control surfaces: FP-9 IRU panel. VP-10 T-Bar Panel. Web Based Java Soft Panel.</p> <p><b>Chassis</b> FB-9E, Ether-Box 1U enclosure.</p> <p><b>Line Standards</b></p> <p><b>SDI</b> 625 and 525</p> <p><b>HD-SDI</b> 1080 -23.98psf/24psf/23.98p/24p/25p/50i/29.97p/30p/59.94i/60i. 720p -23.98/24/25/29.97/30/50/59.94/60.</p> <p><b>Delay</b> From 1uS to 1 Video line depending on user synchronisation window setup.</p> <p><b>Power Supply</b> 100-240V AC. Less than 50W power consumption with 3 LI-1DM units installed.</p> <p><b>Dimensions</b> FB-9E Width 442mm Height 44mm Depth 300mm</p> <p><b>Weight</b> &lt;3kg</p> <p><b>Temperature</b> &lt;25°C ambient, &lt;55°C internal.</p> <p><b>Humidity</b> Recommend 40 to 55% Limits 20 to 80%.</p>
<p><b>When in HD-SDI mode:</b></p> <p><b>HD-SDI Inputs</b> (1.485Gbit, 800mV p-p±10% into 75ohms load) 3 Input (SDI) to SMPTE 259M.</p> <p><b>HD-SDI Outputs</b> (1.485Gbit, 800mV p-p±10% into 75ohms load) 3 Outputs (SDI) to SMPTE 259M. Out1/Lp, Out 2 &amp; Out 3.</p> <p><b>HD-SDI cable equalisation</b> At least 100m of Belden 1694A.</p>	
<p><b>Ancillary Data</b> Passes all ancillary data in vertical interval. This unit does replace the audio data and CRC.</p>	